

LOOP FILTER WITH ACTIVE CAPACITOR AND METHOD FOR  
GENERATING A REFERENCE

Abstract of the Disclosure

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A loop filter for a frequency synthesizer provides a lower frequency pole with a smaller capacitor than conventional filters. The loop-filter comprises a resistor and a smaller capacitor in a series-feedback path, and a transconductor to sense a voltage across the resistor to either source or sink additional current proportional to the sensed voltage. The transconductor and the smaller capacitor may provide a larger capacitance. The loop filter also may comprise an operational amplifier having the smaller capacitor and the resistor in the series-feedback path to receive pulses from a charge pump. The filter may integrate the pulses and may generate a control voltage related to a width of the pulses.

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